

AMENDMENTS TO THE CLAIMS

Please amend the Claims as follows:

1. (AMENDED) A package with an integral window for housing a microelectronic device, comprising:

an electrically insulating, multilayered plate having a first surface, an opposing second surface, and an aperture disposed through the plate;
a first electrical conductor disposed on the second surface of the plate; and
an integral window disposed across the aperture and bonded directly to the plate without having a separate layer of adhesive material disposed in-between the window and the plate;

wherein the geometrical relationship between the outer edge of the integral window and the multilayered plate is selected from the group consisting of an encased joint, a lip recessed inside of the plate, a self-locking geometry, and a geometry that substantially fills the aperture.

2. (CANCELLED)

3. (AMENDED) The package of claim 1, wherein ~~the at least one said~~ first electrical conductor comprises a thick-film metallized trace.

4. (Original) The package of claim 1, wherein the first electrical conductor comprises an electrical lead.

5. (Original) The package of claim 1, wherein the window is bonded directly to a lip recessed inside of the plate.

6. (Original) The package of claim 1, wherein the geometrical relationship between the window and the plate comprises an encased joint geometry.

7. (Original) The package of claim 1, wherein the geometry of the outer edge of the window comprises a self-locking geometry selected from the group consisting of a tapered outer edge, a convex rounded outer edge, and a chevron-shaped double-tapered outer edge.

8. (CANCELLED)

9. (Original) The package of claim 1, wherein the window substantially fills the aperture.

10. (CANCELLED)
11. (Original) The package of claim 10, wherein the window has a convex outer shape for concentrating light passing through the window.
12. (CANCELLED)
13. (Original) The package of claim 1, wherein the window comprises an optically transparent material selected from the group consisting of glass, sapphire, fused silica, clear plastic and clear polymer.
14. (Original) The package of claim 1, wherein the window comprises a material selected from the group consisting of silicon, germanium, metal, metal alloy, lithium niobate and lithium tantalate.
15. (Original) The package of claim 1, wherein the window comprises a material selected from the group consisting of barium fluoride, calcium fluoride, lithium fluoride, magnesium fluoride, potassium fluoride, sodium chloride, zinc oxide, and zinc selenide.
16. (Original) The package of claim 1, wherein the window comprises an anti-reflection coating.
17. (Original) The package of claim 1, wherein the window comprises means for filtering selected wavelengths of light.
18. (Original) The package of claim 1, wherein the window further comprises an array of binary optic lenslets for optically transforming the light that passes through the window.
19. (CANCELLED)
20. (AMENDED) The package of claim 2 1, wherein the multilayered material comprises a low-temperature cofired ceramic multilayered material fired at a temperature from about 600 °C to about 1000 °C.
21. (AMEMDED) The package of claim 2 1, wherein said multilayered material comprises a high-temperature cofired ceramic multilayered material fired at a temperature from about 1300 °C to about 1800 °C.
22. (Original) The package of claim 2 1, wherein said multilayered material comprises a polymer-based printed wiring board composition.

23. (Original) The package of claim 1, further comprising a first microelectronic device flip-chip interconnected to the first electrical conductor.
24. (CANCELLED)
25. (Original) The package of claim 23, wherein the first microelectronic device comprises a light-sensitive side facing the window.
26. (Original) The package of claim 23, further comprising a polymer underfill encapsulating at least one of the flip-chip electrical interconnections.
27. (Original) The package of claim 23, wherein said first microelectronic device comprises a chip selected from the group consisting of a semiconductor chip, a CCD chip, a CMOS chip, a VCSEL chip, a laser diode chip, a LED chip, a MEMS chip, and a IMEMS chip.
28. (Original) The package of claim 23, further comprising a continuous ring seal disposed in-between the first microelectronic device and the plate.
29. (AMENDED) The package of claim 30 23, wherein the atmosphere in-between the window and the ring seal comprises a dry inert gas other than air, selected from the group consisting of argon, nitrogen, and helium, and combinations thereof.
30. (Original) The package of claim 23, wherein the first electrical conductor comprises an electrical lead, and wherein the first electrical device is TAB bonded to the electrical lead.
31. (Original) The package of claim 28, further comprising a second microelectronic device, mounted back-to-back to the first microelectronic device.
32. (Original) The package of claim 31, wherein the plate further comprises a second electrical conductor disposed on the second surface of the plate, and wherein the second microelectronic device is wirebonded to said second electrical conductor.
33. (Original) The package of claim 32, wherein the wirebond and the pair of microelectronic devices are substantially encapsulated in a polymer-based encapsulant.
34. (AMENDED) The package of claim 33, further comprising an opening in the polymer-based encapsulant for providing open access to the front side of the second microelectronic device.

35. (Original) The package of claim 34, wherein the opening in the polymer-based encapsulant is defined by a dam that encircles at least some of the front side of the second microelectronic device, which prevents the encapsulant from occluding the front side of the second microelectronic device during encapsulation of the wirebond.
36. (Original) The package of claim 35, wherein the dam comprises a U-shaped cap having a top that covers the opening in the polymer-based encapsulant defined by the sidewalls of the U-shaped cap.
37. (Original) The package of claim 36, wherein the U-shaped cap is transparent.
38. (Original) The package of claim 31, further comprising a protective cover attached to the second surface of the plate, which covers and protects the wirebonds and the pair of microelectronic devices.
39. (Original) The package of claim 38, wherein the protective cover is attached to the plate with a material selected from the group consisting of a hermetic sealant and an adhesive.
40. (Original) The package of claim 38, wherein the protective cover is transparent.
41. (Original) The package of claim 38, wherein the protective cover comprises a window.

42. (AMENDED) ~~The package of claim 1~~ A package with an integral window for housing a microelectronic device, comprising:

an electrically insulating plate comprising a first surface, an opposing second surface, and an aperture disposed through the plate;

a first electrical conductor disposed on the second surface of the plate;

an integral window disposed across the aperture and bonded directly to the plate, without having a separate layer of adhesive material disposed in-between the window and the plate; and

a first microelectronic device flip-chip interconnected to the first electrical conductor; wherein the package is mounted on, and electrically interconnected to, a printed wiring board;

wherein the printed wiring board comprises an opening through the board; and wherein the aperture in the package is aligned with the opening in the printed wiring board, thereby allowing light to pass through both the opening and the aperture to interact with ~~the a~~ light-sensitive side of the first microelectronic device.

43-64. (CANCELLED)